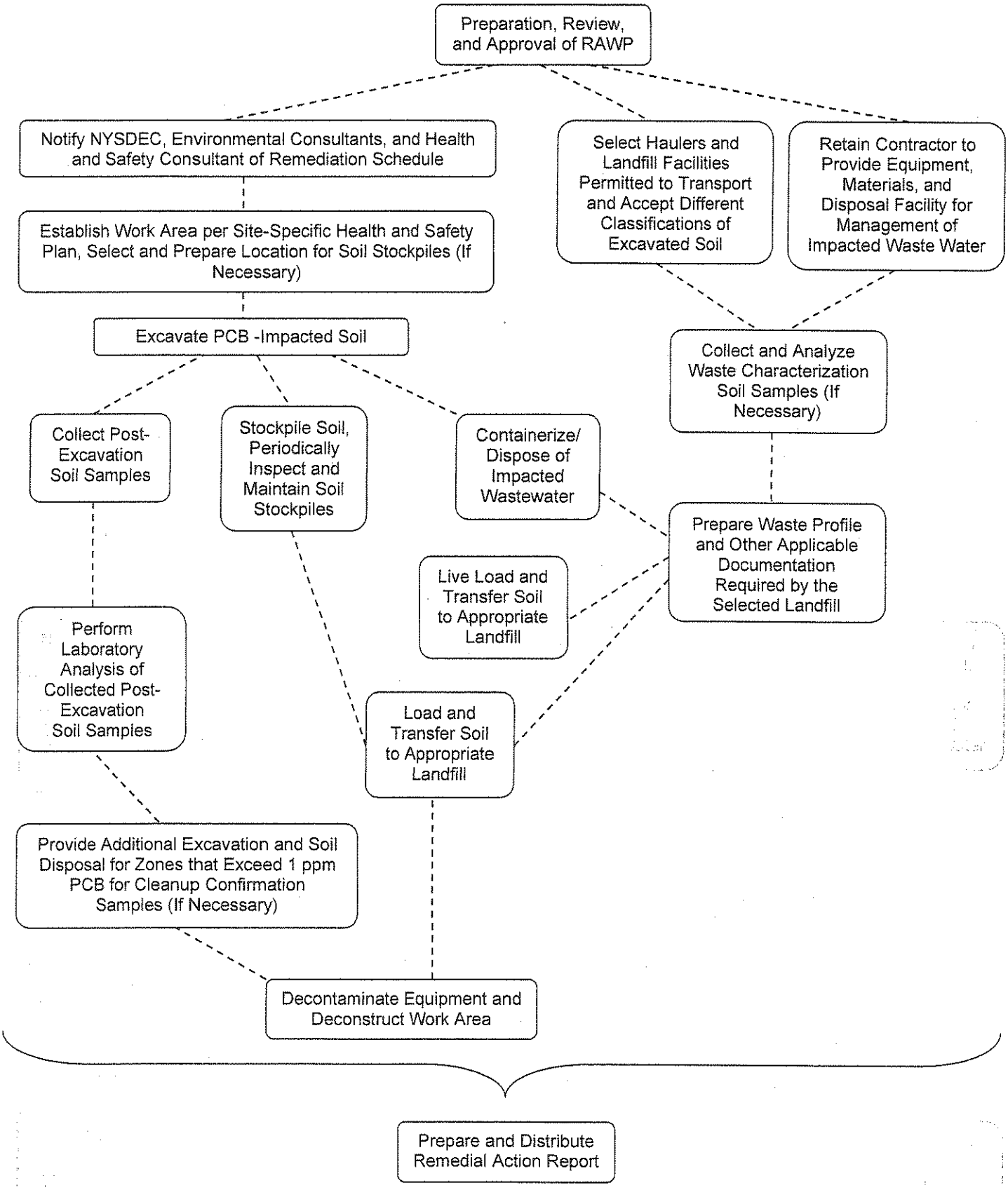
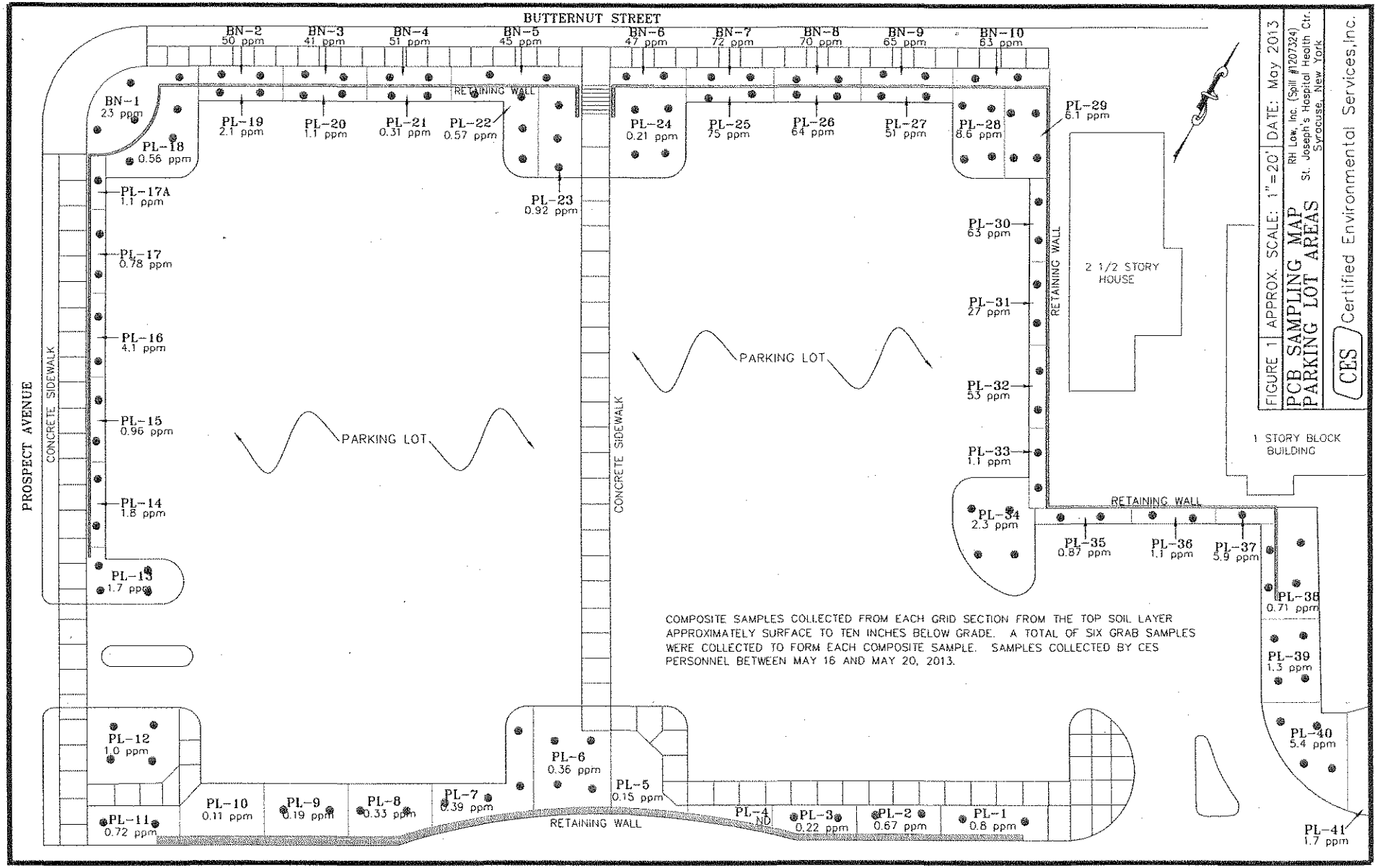
Appendix D

Project Remediation Flow Chart


Preparation, Review, and Approval of RAWP
Notify NYSDEC, Environmental Consultants, and Health and Safety Consultant of Remediation Schedule
Select Haulers and Landfill Facilities Permitted to Transport and Accept Different Classifications of Excavated Soil
Retain Contractor to Provide Equipment, Materials, and Disposal Facility for Management of Impacted Waste Water
Establish Work Area per Site-Specific Health and Safety Plan, Select and Prepare Location for Soil Stockpiles (If Necessary)
Excavate PCB -Impacted Soil
Collect and Analyze Waste Characterization Soil Samples (If Necessary)
Collect Post-Excavation Soil Samples
Stockpile Soil, Periodically Inspect and Maintain Soil Stockpiles
Containerize/ Dispose of Impacted Wastewater
Prepare Waste Profile and Other Applicable Documentation Required by the Selected Landfill
Live Load and Transfer Soil to Appropriate Landfill
Perform Laboratory Analysis of Collected Post-Excavation Soil Samples
Load and Transfer Soil to Appropriate Landfill
Provide Additional Excavation and Soil Disposal for Zones that Exceed 1 ppm PCB for Cleanup Confirmation Samples (If Necessary)
Decontaminate Equipment and Deconstruct Work Area
Prepare and Distribute Remedial Action Report

Post-Excavation Plan

Legend:
● : Samples to be collected post excavation



COMPOSITE SAMPLES COLLECTED FROM EACH GRID SECTION FROM THE TOP SOIL LAYER APPROXIMATELY SURFACE TO TEN INCHES BELOW GRADE. A TOTAL OF SIX GRAB SAMPLES WERE COLLECTED TO FORM EACH COMPOSITE SAMPLE. SAMPLES COLLECTED BY CES PERSONNEL BETWEEN MAY 16 & MAY 20, 2013.

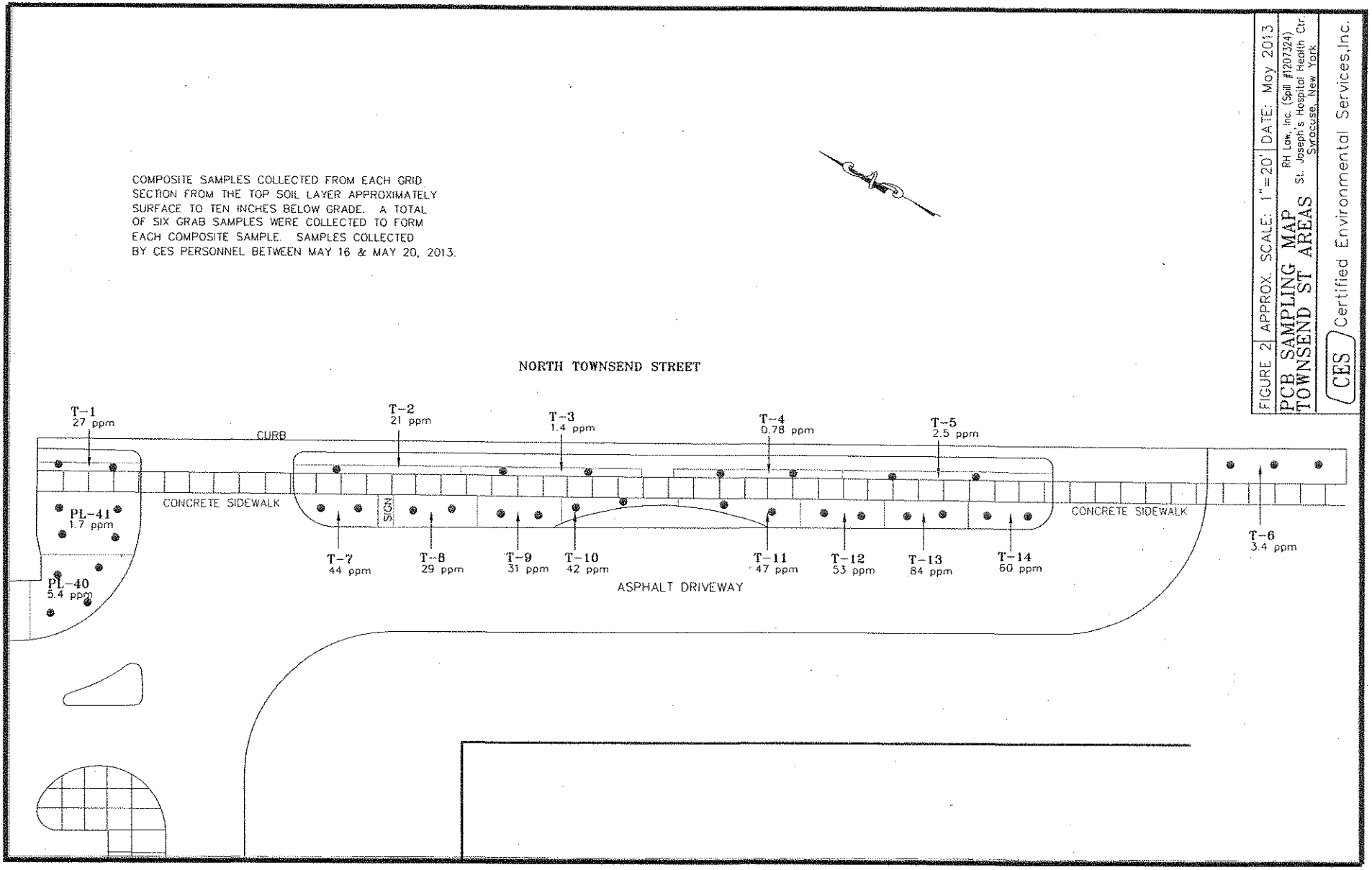


FIGURE 2 | APPROX. SCALE: 1" = 20' | DATE: May 2013

PCB SAMPLING MAP
TOWNSEND ST AREAS

RH Law, Inc. (Spill #1207324)
St. Joseph's Hospital Health Ctr.
Syracuse, New York

CES Certified Environmental Services, Inc.

SITE SPECIFIC HEALTH AND SAFETY PLAN

Site Specific Health and Safety Plan

St. Joseph's Hospital
Butternut and Townsend
Syracuse, NY

Date: July 21, 2013 **Revision: 0**

TABLE OF CONTENTS

1. Introduction

1.1 Policy Statement

The policy of Robert H. Law Incorporated (RHLaw) is to provide a safe and healthful work environment for all employees. No aspect of operations is of greater importance than injury and illness prevention. A fundamental principle of safety is that all accidents and injuries are preventable. RHLaw will take reasonable steps to eliminate or control hazards in order to minimize the possibility of injury, illness, or accident.

This Health and Safety Plan (HASP) prescribes the procedures that must be followed during site activities. Operational changes that could affect the health and safety of personnel, the community, or the environment will not be made without the prior approval of the RHLaw Project Manager. This document will be periodically reviewed to ensure that it is current and technically correct. This HASP shall be utilized as a component of RHLaw's site health and safety program. Any changes in site conditions and/or the scope of work will require a review and modification to the HASP. Such changes will be completed in the form of an addendum to this plan or a revision of the plan.

The provisions of this plan are mandatory for all RHLaw. Personnel assigned to the project. Subcontractors may develop and work in accordance with their own health and safety plan but it must meet the minimum requirements of this plan. All visitors to the work site must also abide by the requirements of the plan. It should be acknowledged that the employees of other contracted companies may work in accordance with their own independent HASPs. Subcontractor HASPs, if prepared, must meet the requirements of this HASP.

1.2 Objective

The objective of this plan is to provide a mechanism for establishing safe working conditions at the site. The safety organization, procedures, and protective equipment have been established based on an analysis of potential physical, chemical, and biological hazards. Specific hazard control methodologies have been evaluated and selected to minimize the potential of accidents and injuries.

1.3 Site Description

PCB impacted soil was used at fill in 45 locations at the St. Joseph's Hospital located at the corner of Butternut and Townsend Streets in Syracuse, NY.

Impacted soil is segregated into three categories. Soil with less than 1 ppm PCB is not considered contaminated and is not colored on the map in appendix A. Soil with PCM contamination between 1 and 50 ppm is considered contaminated but not hazardous and is colored yellow on the map in Appendix A. Soil with PCB contamination 50 ppm or greater is considered hazardous and is marked in red on the map in Appendix A. All PCB impacted soil is in top soil with grass covering.

1.4 Scope of Site Activities

The purpose of site activities is to implement the scope of work for RHLaw activities at the ***Location*** in Syracuse, New York. Site activities may include the following components:

- Mobilization;
- Removal and Disposal PCB Impacted Soil;
- Site Restoration;
- Equipment Cleaning / Decontamination; and
- Demobilization.

A job hazard assessment identifies potential safety, health, and environmental hazards associated with each type of field activity. Based on the job hazard assessment for each task involved in the project control measures and protective measures are developed to protect site personnel. The job hazard assessment and control measures are discussed in Section 3 of this HASP.

Because of the complex and changing nature of field projects, the supervisor must continually review the work site to identify hazards that may harm site personnel, the community, or the environment. Project supervision must also review the scope of work and if it changes then the HASP must be reviewed to verify that the change in work scope is still covered by the HASP.

1.5 References

This HASP complies with applicable Occupational Safety and Health Administration (OSHA) regulations, United States Environmental Protection Agency (USEPA) regulations, and RHLaw Health and Safety policies and procedures. This plan follows the guidelines established in the following:

- *Standard Operating Safety Guides*, USEPA (Publication 9285.1-03, June 1992).
- *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, NIOSH, OSHA, USCG, USEPA (86-116, October 1985).
- Title 29 of the Code of Federal Regulations (CFR), Part 1910.120.
- Title 29 of the Code of Federal Regulations (CFR), Part 1926.
- *Pocket Guide to Chemical Hazards*, DHHS, PHS, CDC, NIOSH.
- *Threshold Limit Values for Chemical Substances and Physical Agents*, ACGIH.

1.6 Definitions

The following definitions are applicable to this HASP:

- ***Site*** - the area where the work is to be performed by RHLaw personnel.
- ***Project*** - all on-site work performed under the scope of work for site activities.
- ***Subcontractor*** - includes subcontractor personnel hired by RHLaw..
- ***On-Site Personnel*** - all RHLaw, and RHLaw subcontractor personnel at the site and directly involved with the project.
- ***Visitor*** - all other personnel, except the on-site personnel. All visitors must receive approval to

enter the site.

2. Roles and Responsibilities

2.1 All Personnel

All RHLaw and subcontractor personnel must adhere to these procedures during the performance of their work. Each person is responsible for completing tasks safely, and reporting any unsafe acts or conditions to his or her immediate supervisor or to the RHLaw Site Supervisor/Health and Safety Specialist (SS/HSS). No person may work in a manner that conflicts with these procedures. After due warnings, the PM or the HSS will dismiss from the site any person who violates safety procedures.

All on-site personnel will receive training in accordance with 29 CFR 1910.120 and other site specific training (see Section 9.4) as required by applicable OSHA standards. In addition, project personnel will be familiar with the requirements and procedures contained in this document prior to the beginning of project operations.

The roles of key RHLaw personnel are outlined in the following sections. Key personnel and contacts are summarized in Table 2.1.

2.2 Site Project Manager

Each contractor shall assign a qualified person to fulfill the role of project manager. Each contractor's Project Manager (PM) is ultimately responsible for ensuring that all project activities are completed in accordance with the requirements and procedures in this site HASP. The PM is responsible to provide the Health and Safety Specialist (HSS) with the equipment, materials and qualified personnel to implement fully all safety requirements in this HASP.

It is also the responsibility of the PM to:

- Report all accidents and incidents and thoroughly investigate all such occurrences on the project;
- Review and approve, in writing, any addenda or modifications of this HASP;
- Notify local public emergency personnel/officers of the nature of the site operations;
- Verify that all site personnel, including subcontractors, have received the proper medical clearances and training in accordance with the requirements of this HASP;
- Suspend work if health and/or safety-related concerns arise; and
- Formally review this plan with the HSS.

2.3 Health and Safety Supervisor (HSS)

The HSS is responsible for implementation of the HASP, including communication of site requirements to all on-site project personnel (including subcontractors). The HSS will be responsible for any changes in the work plan or procedures and verifying that changes are addressed in the HASP. The HSS will establish and oversee the project air monitoring program. The HSS is the primary site contact on occupational health and safety matters. Other responsibilities include:

- Conduct periodic safety inspections of the site during implementation activities, and completing a periodic safety inspection form;
- Perform and document daily safety briefings;
- Stop work, as required, to ensure personal safety and protection of property, or in cases of life- or property-threatening safety non-compliance;
- Obtain a site map and post emergency evacuation routes and meeting areas during the different phases of work;
- Posting routes to medical facilities and emergency telephone numbers, and arranging emergency transportation to medical facilities;
- Observe on-site project personnel for signs of chemical or physical trauma;
- Verify that all on-site personnel are made aware of the provisions of the HASP and have been informed of the nature of any physical, chemical, and biological hazards associated with the site activities;
- Designate as necessary, qualified/competent personnel to comply with OSHA-defined regulations/activities requiring such individuals (i.e., excavations, scaffolding, etc.)
- Verify that on-site personnel and visitors have received the required training, including instructions for safety equipment and personal protective equipment (PPE) use;
- Maintain documentation of training and medical clearance at the job site for site personnel;
- Issue/obtain required work permits.
- Review site and personal air monitoring, including equipment maintenance and calibration. Where necessary, submit samples to an American Industrial Hygiene Association (AIHA) accredited laboratory;
- Prepare material for site safety orientation training and safety meetings;
- Review site activities with respect to compliance with the HASP; and
- Maintain required health and safety documents and records.

2.4 On-Site Personnel and Visitors

All personnel must read and acknowledge their understanding of this HASP, abide by the requirements of the plan, and cooperate with site supervision in ensuring a safe work site. Site personnel will immediately report any of the following to the HSS:

- Accidents and injuries, no matter how minor;
- Unexpected or uncontrolled release of chemical substances;
- Symptoms of chemical exposure;
- Unsafe or malfunctioning equipment;
- Changes in site conditions that may affect the health and safety of project personnel;
- Damage to equipment or property; and
- Situations or activities for which they are not properly trained.

TABLE 2-1
KEY PERSONNEL

Comment: I need RHLaw details

Robert H. Law Incorporated Personnel		
Role	**Name**	**Telephone No.**
Project Manager		*Number* ext Cell- *Number*
Project Manager (Alternate)		*Number* ext Cell- *Number*
Project Superintendent/ Health and Safety Supervisor	Richard Philips	*Number* ext Cell- *Number*
NYS DEC Key Personnel		
Role	**Name**	**Telephone No.**
Project Manager	Harry Warner	Cell- **315.426.7524** **hdwarner.gw.dec.state.ny**

3. Project Hazards and Control Measures

3.1 Scope of Work

The scope of work may include the following field activities:

- Mobilization;
- Removal and Disposal PCB Impacted Soil;
- Site Restoration;
- Equipment Cleaning / Decontamination; and
- Demobilization.

3.1.1 Job Hazard Assessment

A job hazard assessment identifies potential safety, health, and environmental hazards associated with each type of field activity. Because of the complex and changing nature of field projects, supervisors must continually review the work site to identify hazards that may harm site personnel, the community, or the environment. The HSS must be aware of these changing conditions and their impact on employee health, safety, the environment, or performance of the project. The HSS will write or approve addenda or revisions to this HASP as necessary.

3.2 Field Activities, Hazards, Control Procedures

The following sections discuss general safety hazards associated with specific field activities outlined in the scope of work for this project. Each contracted and subcontracted company must review these activities and safety procedures with respect to their own standard safe operating procedures. Each contracted and subcontracted company may utilize their own standard safe operating procedures provided the minimum requirements set forth in this HASP, 29 CFR 1910, and 29 CFR 1926 are met. Each contracted and subcontracted company is responsible for operating in a safe and healthful manner in order to protect their personnel and all site personnel.

3.2.1 Mobilization

Site mobilization may include establishing exclusion, contamination reduction (decontamination areas), and support zones. A break area will be set up outside the regulated work area. Mobilization may involve clearing areas for the support and contamination reduction zones. During this initial phase, project personnel will walk the site to confirm the existence of anticipated hazards, and identify safety and health issues that may have arisen since the writing of this plan.

The hazards of this phase of activity are associated with heavy equipment movement, manual materials handling, installation of temporary on-site facilities and office space, construction activities, and manual site preparation.

Manual materials handling and manual site preparation may cause blisters, sore muscles, and joint and skeletal injuries; and may present eye, contusion and laceration hazards. The work area presents slip, trip and fall hazards from scattered debris and irregular walking surfaces. Rainy weather may cause wet, muddy, slick walking surfaces, and unstable soil.

Exposure to materials, debris, and water containing site constituents of concern is possible. In accordance with Section 5, decisions on personal protective equipment (PPE) for potential chemical and physical hazards will be based on measurements and observations made prior to and during work activities. Appropriate hearing protection and hearing conservation procedures will be implemented.

Environmental hazards may include weather, such as sunburn, lightning, rain, and heat related illnesses; and blood-borne pathogens. Control procedures for these hazards are discussed in Section 4.

Installation of temporary field support facilities may expose personnel to electrical hazards, underground and overhead utilities, heavy equipment, and physical injury due to manual lifting and moving of materials.

Physical Hazards: The physical hazards involved with mobilization activities are associated with equipment, hand tools, and the site environment itself. There exists a potential for incidents involving personnel struck by or struck against equipment resulting in fractures, cuts, punctures, or abrasions. Walking and working surfaces during activities may involve slip, trip, and fall hazards.

Working Surfaces: Slippery work surfaces can increase the likelihood of back injuries, overexertion injuries, and slips and falls. All personnel should frequently inspect working surfaces and keep working surface clear of debris.

Materials Handling: The most common type of accident that occurs in material handling operations is the "caught between" situation when a load is being handled and a finger or toe gets caught between two objects. Extreme care must be taken when loading and unloading material. Proper lifting technique must be employed.

Control: Prior to initiating mobilization activities, the operation will be explained to all employees. Hazards will be identified and protective measures will be explained. Equipment will be inspected and in proper working condition. Employees should receive training to address the equipment, its operations, and care. Mechanical assistance should be provided for large lifting tasks. Hearing protection is required for use when exposed to noise levels exceeding 85 dBA, or a level which commonly results in difficult conversation.

3.2.2 Excavation and Soil Removal Activities

3.2.2.1 Soil Excavation Hazards

This task involves removing earthen materials from a designated area, thereby creating a man-made cut, trench, or depression in the earth's surface.

Physical Hazards: The physical hazards involved in the excavation of soils are related to the excavation itself and the operation of heavy equipment. The presence of overhead utilities such as power lines requires careful positioning of the excavating equipment in order to maintain a safe distance between the lines and the closest part of the equipment. The presence of underground utilities such as gas lines, power lines, water lines and sewer pipes must be determined prior to beginning the excavation.

Excavations pose significant hazards to personnel if they are not carefully controlled. There exists a chance for the excavation to collapse if it is not dug properly, sloped, benched or shored as required by 29 CFR 1926 Subpart P. Protective systems, as required by 29 CFR 1926 Subpart P, must be utilized if the potential for hazardous cave-ins exist. The excavation also is a fall hazard, and personnel must pay careful attention to what they are doing or they risk a fall into the excavation. Fall protection, as required by 29 CFR 1926 Subpart M, will be required.

Some construction and installation activities may require personnel to enter an excavation. Whenever possible, equipment placement and other activities should be done remotely, without entering the excavation. If entry is absolutely unavoidable, the safety procedures for excavation entry and protective systems consistent with 29 CFR 1926 Subpart P shall be followed for each such activity. Air monitoring in accordance with Section 8 is required for all excavation entry activities.

Noise also may present a hazard. Heavy equipment operation frequently results in noise levels exceeding 85 dBA, requiring the use of hearing protection.

Chemical Hazards: Airborne concentrations of project site constituents, skin contact with media containing project site constituents, and the dust from the procedure pose the potential for exposure at this stage.

Control: Before any digging can be done, all underground utilities must be located and identified. PPE for this phase is described in Section 5.0. All excavation activities shall be conducted in accordance with 29 CFR 1926 Subpart P. As indicated above, any personnel entry into an excavation will be in accordance with 29 CFR 1926 Subpart P. If excavation operations are located near underground installations, the exact location of the installations must be determined by safe and acceptable means. While the excavation is open, underground installations must be protected, supported or removed as necessary to safeguard personnel.

3.2.2.2 Overhead Electrical Clearances

If excavation is conducted in the vicinity of overhead power lines, the power to the lines must be shut off **or** the equipment must be positioned such that no part, including excavation boom can come within the minimum clearances as follows:

Nominal System Voltage	Minimum Required Clearance
0-50kV	10 feet
51-100kV	12 feet
101-200kV	15 feet
201-300kV	20 feet
301-500kV	25 feet
501-750kV	35 feet
751-1,000kV	45 feet

When the equipment is in transit, with the boom lowered and no load, the equipment clearance must be at least 4 feet for voltages less than 50kV, 10 feet for voltages of 50 kV to 345 kV, and 16 feet for voltages above 345 kV.

3.2.3 Heavy Equipment Materials Handling

To protect all on-site project personnel against hazards associated with materials handling, and to prevent injury due to unsafe heavy equipment operation, only properly trained and authorized operators will be allowed to operate heavy equipment. All materials handling equipment will be maintained in safe operating condition and inspected daily prior to use.

3.2.3.1 Equipment Construction / Safety Features

Arrangements shall be made to direct exhaust gases away from the operator's breathing zone. When push-tractors are working in tandem, heat shields, or equivalent protection, shall be provided for operators.

Windshields complying with the applicable provisions of the Vehicle Code shall be provided and maintained on haulage vehicles. Equipment and accessories installed on haulage vehicles shall be arranged so as to avoid impairing the driver's operational vision to the front or sides.

Service brake systems for self-propelled, rubber-tired, off-highway equipment manufactured before January 1, 1972 (for scrapers January 1, 1971) shall meet minimum performance criteria for service brake systems as set forth in the Society of Automotive Engineers Recommended Practices listed below. Service, emergency and parking brake systems for self-propelled, rubber-tired, off-highway equipment manufactured after January 1, 1972 (for scrapers January 1, 1971) shall meet the applicable minimum performance criteria for each system as set forth in the same Society of Automotive Engineers Recommended Practices:

Trucks and Wagons	SAE J166-1971
Front-End Loaders & Dozers	SAE J237-1971

Haulage vehicles, whose pay load is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials. Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.

Crawler tractors, bulldozers, carryalls and similar equipment manufactured and used prior to April 1, 1971, except for scrapers, front-end loaders and new equipment, shall have canopy protection and seat belts for the operator when used where there is exposure to falling or rolling objects.

Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism. Trip handles for tailgates of dump trucks shall be so arranged that in dumping, the operator will not be exposed either to the hazard of being struck by falling material or any part of the truck. Haulage vehicles equipped with dump bodies that tilt to release their load by gravity through an opening at the rear or side shall be provided with a device that gives the operator a clearly audible or visible warning when sufficient force is applied by the elevating mechanism to cause or sustain dump body elevation. Roll over protective structures (ROPS) and seat belts shall be installed and used on all equipment in accordance with 29 CFR 1926 Subpart W.

Vehicles with cabs shall have windshields and powered windshield wipers. Cracked or broken windshields shall be replaced promptly. Where fogging or frosting of windshields is prevalent, defogging or defrosting equipment shall be required. Tools and material shall be secured to prevent movement when transported in the same compartment with personnel.

Vehicles used to transport personnel shall have seats firmly secured and adequate for the number of personnel to be carried.

Where vehicles are operated, temporary covers for conduits, trenches and manholes and their supports, when located in roadways and vehicular aisles, shall be designed to carry at least 2 times the maximum intended vehicular live load and they shall be designed and installed as to prevent accidental displacement.

3.2.3.2 Audible Alarms

Every vehicle used to haul dirt, rock, concrete, or other construction material shall be equipped with a warning device that operates automatically while the vehicle is backing. The warning sound shall be of such magnitude that it will normally be audible from a distance of 200 feet and will sound immediately on backing. In congested areas or areas with high ambient noise which obscures the audible alarm, a signaler, in clear view of the operator, shall direct the backing operation. Other vehicles, if operating in areas where their backward movement would constitute a hazard to personnel working in the area on foot, and where the operator's vision is obstructed to the rear of the vehicle shall be equipped with an effective device or method to safeguard personnel such as:

- An automatic back-up audible alarm which would sound immediately on backing, or
- An automatic braking device at the rear of the vehicle that will apply the service brake immediately on contact with any obstruction to the rear, or
- In lieu of 1 or 2 above, administrative controls shall be established such as:

  A) A spotter or flagger in clear view of the operator who shall direct the backing operation,

  B) Other procedures which will require the operator to dismount and circle the vehicle immediately prior to starting a back-up operation, or

  C) Prohibiting all foot traffic in the work area.

- Other means shall be provided that will furnish safety equivalent to the foregoing for personnel working in the area.

All vehicles shall be equipped with a manually operated warning device which can be clearly heard from a distance of 200 feet. The operator of all vehicles shall not leave the controls of the vehicle while it is moving under its own engine power. Hauling or earth moving operations shall be controlled in such a manner as to ensure that equipment or vehicle operators know of the presence of rootpickers, spotters, lab technicians, surveyors, or other workers on foot in the areas of their operations.

3.2.3.3 Equipment Inspection and Maintenance

All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brake); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects affecting safe operation shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

Vehicle engines shall not be allowed to run in closed garages or other enclosed places, unless vents are provided which effectively remove the exhaust gases from the building.

Except for emergency field repairs, a safety tire rack, cage, or equivalent protection shall be used when inflating truck or equipment tires after mounting on a rim, if such tires depend upon a locking ring or similar device to hold them on the rim.

No repairs shall be attempted on power equipment until arrangements are made to eliminate possibility of injury, caused by sudden movements or operation of the equipment or its parts. When the equipment being repaired is a bulldozer, carryall, ripper, or other machine having sharp or heavy moving parts such as blades, beds, or gates, such parts shall be lowered to the ground or securely and positively blocked in an inoperative position.

All controls shall be in a neutral position, with the engine(s) stopped and brakes set, unless work being performed requires otherwise. Trucks with dump bodies shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done. In all cases where the body is raised for any work, the locking device shall be used.

3.2.3.4 Equipment Parking and Loading

Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set or be otherwise prevented from moving by effective mechanical means.
Scissor points on all front-end loaders which constitute a hazard to the operator shall be adequately guarded. A loader shall not travel without adequate visibility for the driver and stability of the equipment. No loading device shall be left unattended until the load or bucket is lowered to the ground, unless proper precautions such as blocking are taken to prevent accidental lowering.

3.2.3.5 Equipment Fueling

No internal combustion engine fuel tank shall be refilled with a flammable liquid while the engine is running. Fueling shall be done in such a manner that the likelihood of spillage is minimal. If a spill occurs it shall be contained and cleaned, or equivalent action taken to control vapors before restarting the engine. Fuel tank caps shall be replaced before starting the engine.

A good metal-to-metal contact shall be kept between fuel supply tank or nozzle of supply hose and the fuel tank. No open lights, welding, or sparking equipment shall be used near internal combustion equipment being fueled or near storage tanks. No smoking shall be permitted at or near the gasoline storage area or on equipment being fueled. Post a conspicuous sign in each fuel storage and fueling area stating: "NO SMOKING WITHIN 25 FEET." Class I liquids shall not be dispensed by pressure from drums, barrels, and similar containers. Approved pumps taking suction through the top of the container or approved self-closing faucets shall be used. No repairs shall be made to equipment while it is being fueled.

Each fuel storage tank or drum shall have the word "Flammable" conspicuously marked thereon and should also have a similarly sized word indicating the contents of the container. A fire extinguisher rated 20:BC or larger shall be in a location accessible to the fueling area.

3.2.3.6 Additional Safety Requirements

Additional general heavy equipment safety requirements include, but are not limited to:

- Prior to operating any heavy equipment, the authorized operator must conduct a pre-operation inspection to determine if the heavy equipment is in safe operating condition prior to each work shift;
- All mobile equipment will be equipped with an audible back-up alarm;
- Personnel will not be allowed to stand or pass under the elevated portion of any heavy equipment, whether loaded or empty;
- Personnel will not place arms or legs between pinch or scissors points of the equipment or outside the operator enclosure;
- A safe distance will be maintained from the edge of excavations, ditches, ramps, or platforms;
- Operators will maintain sufficient headroom under overhead utilities, installations, lights, pipes, sprinkler systems, etc.;
- Heavy equipment must never be used for lifting or transporting personnel;
- The operator is required to look in the direction of, and maintain a clear view of, the path of travel;
- Heavy equipment will not be operated without an overhead guard and roll-over protection to protect the operator against falling objects and roll-over;
- Heavy equipment must not be driven up to anyone standing in front of any object;
- Stunt driving and horseplay are strictly prohibited;
- Operators will yield the right-of-way to other site vehicles;
- Other heavy equipment traveling in the same direction, at intersections, blind spots, or other dangerous locations must not be passed;
- A safe distance will be maintained from other heavy equipment, and the equipment must be kept under control at all times;

- The heavy equipment operator must slow down for wet and slippery conditions. Under all travel conditions the equipment will be operated at a speed that will permit it to be brought to a stop in a safe manner;

- Operators will avoid running over loose objects on operating surfaces;

- Grades or ramps must be ascended or descended slowly.

- On all grades the load will be tilted back, and raised only as far as necessary to clear the operating surface;

- The operator will slow down and sound the horn at intersections, entering buildings, and other locations where vision may be obstructed;

- If the load being carried obstructs forward view, the operator will travel with the load trailing;

- While negotiating turns, speed will be reduced to a safe level, and turning will be in a smooth, sweeping motion to avoid abrupt turns and potential upset; and

- Authorized operators will only handle stable or safely arranged loads and loads within the rated capacity of the heavy equipment and will not affect the stability of the heavy equipment.

When a piece of heavy equipment is left unattended, hydraulics will be fully lowered, controls will be neutralized, power will be shut off, and brakes set. Wheels will be blocked or chocked if the heavy equipment is parked on an incline. When internal combustion engine-powered heavy equipment is utilized indoors, near confined spaces, or near excavations, carbon monoxide levels shall be monitored to prevent personnel exposure.

3.2.4 Demobilization

Demobilization will involve the removal of all tools, equipment, supplies, and vehicles brought to the site. The physical hazards of this phase of activity are associated with heavy equipment operation and manual materials handling. Equipment operation presents noise and vibration hazards and hot surfaces. Manual materials handling and manually working with sediment/soils may cause blisters, sore muscles, joint and skeletal injuries. The work area presents slip, trip and fall hazards from scattered debris and irregular walking surfaces. Freezing weather hazards include frozen, slick and irregular walking surfaces. Wet weather may cause wet, muddy, slick walking surfaces.

Exposure to sediment, soil, and water containing site constituents of concern is possible. In accordance with Section 5, decisions on personal protective equipment (PPE) for potential chemical and physical hazards will be based on measurements and observations made prior to, and during, work activities.

Environmental hazards include weather, such as sunburn, lightning, rain, heat and cold-related illnesses; and blood-borne pathogens. Control procedures for these hazards are discussed in Section 4.0.

3.3 Chemical Hazards

The chemical hazards associated with site operations are related to inhalation, ingestion, and skin exposure to site constituents of concern (COCs). Concentrations of airborne COCs during site tasks may be significant, and will require air monitoring of potentially toxic atmospheres during such operations. Air monitoring requirements for site tasks are outlined in Section 8.1.

Site COCs are primarily: PCBs.

In general, symptoms of exposure to site COCs include, but are not limited to, the following: skin irritation, eye irritation, respiratory tract irritation, and nausea.

The potential for inhalation of media containing site COCs is low to moderate. The potential for dermal contact with surfaces, debris or water containing site COCs during operations is moderate to high. A summary sheet of the chemical, physical, and toxicological properties of site COCs is provided in Attachment 2.

4. General Safety Practices

4.1 General Practices

General safety procedures for site activities include, but are not limited to the following:

- At least one copy of this plan must be at the project site, in a location readily available to all personnel, and reviewed by all project personnel prior to starting work.
- All site personnel must use the buddy system (working in pairs or teams).
- Food, beverages, or tobacco products must not be present or consumed in the exclusion and contamination reduction zones. Cosmetics must not be applied within these zones.
- Impacted protective equipment, such as respirators, hoses, boots, etc., must not be removed from the regulated area before being cleaned or properly packaged and labeled.
- Emergency equipment such as eyewash, fire extinguishers, portable shower, etc. must be removed from storage areas and staged in readily accessible locations.
- Impacted waste, debris, and clothing must be properly contained, and legible and understandable precautionary labels must be affixed to the containers.
- Removing contaminated material from protective clothing or equipment with compressed air, shaking, or any other means that disperses contaminants into the air is prohibited.
- Containers must be moved only with the proper equipment, and must be secured to prevent dropping or loss of control during transport.

Visitors to the site must abide by the following:

- All visitors must be instructed to stay outside the exclusion and contamination reduction zones, and remain within the support zone during the extent of their stay. Visitors must be cautioned to avoid skin contact with surfaces which are contaminated or suspected to be contaminated.

- Visitors requesting to observe work in the exclusion zone must don all appropriate PPE prior to

entry into that zone, and must be cleared for hazardous waste work as evidenced by a complete physical examination; have had 24 hours of hazardous waste operations training; and have 8 hours of refresher training within the past 12 months. If respiratory protective devices are necessary, visitors who wish to enter the contaminated zone must have been respirator-trained and fit-tested for a respirator within the past 12 months.

- Visitor inspection of the contaminated area is at the discretion of the HSS.

- Visitors must sign that they have read and understand the Health and Safety Plan.

4.1.1 Buddy System

All on-site personnel must use the buddy system. Visual contact must be maintained between crew members at all times, and crew members must observe each other for signs of chemical exposure, heat or cold stress. Indications of adverse effects include, but are not limited to:

- Changes in complexion and skin coloration;
- Changes in coordination;
- Changes in demeanor;
- Excessive salivation and pupillary response; and
- Changes in speech pattern.

Team members must also be aware of potential exposure to possible safety hazards, unsafe acts, or noncompliance with safety procedures.

Employees must inform their partners or fellow team members of nonvisible effects of exposure to toxic materials. The symptoms of such exposure may include:

- Headaches
- Dizziness
- Coughs
- Nausea
- Blurred vision
- Cramps
- Rashes, chloracne, or other skin conditions
- Irritation of eyes, skin, or respiratory tract.

If protective equipment or noise levels impair communications, prearranged hand signals must be used for communication. Personnel must stay within line of sight of another team member.

4.1.2 Emergency Equipment

Each contractor is required to maintain adequate emergency equipment for the activities they conduct on-site and as required by applicable sections of 29 CFR 1910 and 29 CFR 1926. Robert H. Law Construction's HSS will verify that access is provided for personnel to emergency equipment including, but limited to the following:

- Emergency eyewash and shower meeting ANSI Z358.1-1990 or equivalent.
- Fire extinguishers of adequate size, class, number, and location as required by applicable sections of 29 CFR 1910 and 29 CFR 1926.
- Industrial First Aid Kit of adequate size for number of personnel on-site.

4.2 Heat

Heat stress is caused by a number of interacting factors including environmental conditions, clothing, workload, etc., as well as the physical and conditioning characteristics of the individual. Since heat stress is one of the most common illnesses associated with hazardous waste sites, clean-up and/or corrective actions, heavy outdoor work conducted with direct solar load and, in particular, because wearing personal protective equipment can increase the risk of developing heat stress, workers must be capable of recognizing the signs and symptoms of heat-related illnesses. Personnel must be aware of the types and causes of heat-related illnesses and be able to recognize the signs and symptoms of these illnesses in both themselves and their co-workers.

Heat rashes are one of the most common problems in hot work environments. Commonly known as prickly heat, a heat rash is manifested as red papules and usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Prickly heat occurs in skin that is persistently wetted by unevaporated sweat, and heat rash papules may become infected if they are not treated. In most cases, heat rashes will disappear when the affected individual returns to a cool environment.

Heat cramps are usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. It is important to understand that cramps can be caused both by too much and too little salt.

Cramps appear to be caused by the lack of water replenishment. Because sweat is a hypotonic solution (plus or minus 0.3% NaCl), excess salt can build up in the body if the water lost through sweating is not replaced. Thirst cannot be relied on as a guide to the need for fluids; instead, fluids must be taken every 15 to 20 minutes in hot environments.

Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of electrolytes may occur. Drinking commercially available carbohydrate and electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

Heat exhaustion occurs from increased stress on various body organs due to inadequate blood circulation, cardiovascular insufficiency, or dehydration. Signs and symptoms include pale, cool, moist skin; heavy sweating; dizziness; nausea; headache, vertigo, weakness, thirst, and giddiness. Fortunately, this condition responds readily to prompt treatment.

Heat exhaustion should not be dismissed lightly, however, for several reasons. One is that the fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; moreover, the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke,

which is a medical emergency.

Workers suffering from heat exhaustion should be removed from the hot environment, be given fluid replacement, and be encouraged to get adequate rest.

Heat stroke is the most serious form of heat stress. Heat stroke occurs when the body's system of temperature regulation fails and the body's temperature rises to critical levels. This condition is caused by a combination of highly variable factors, and its occurrence is difficult to predict.

Heat stroke is a medical emergency. The primary signs and symptoms of heat stroke are confusion; irrational behavior; nausea; loss of consciousness; convulsions; a lack of sweating (usually); hot, dry skin; and an abnormally high body temperature. If body temperature is too high, it causes death. The elevated metabolic temperatures caused by a combination of work load and environmental heat load, both of which contribute to heat stroke, are also highly variable and difficult to predict.

If a worker shows signs of possible heat stroke, professional medical treatment should be obtained immediately. The worker should be placed in a shady area and the outer clothing should be removed. The worker's skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the victim's physical fitness and the timing and effectiveness of first aid treatment. Regardless of the worker's protestations, an employee suspected of being ill from heat stroke should not be sent home or left unattended unless a physician has specifically approved such an order.

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone suffers from heat stroke or exhaustion, that person may be predisposed to additional heat injuries.

Heat Stress Safety Precautions

Heat stress monitoring and work rest cycle implementation should commence when the ambient adjusted temperature exceeds 72 degrees Fahrenheit (°F). A minimum work rest regimen and procedures for calculating ambient adjusted temperature are described in the Table 3-1.

Table 3-1
Work/Rest Schedule

Adjusted Temperature[b]	*Work-Rest Regimen Normal Work Ensemble*[c]	*Work-Rest Regimen Impermeable Ensemble*
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 minutes of work	After each 60 minutes of work

Adjusted Temperature[b]	*Work-Rest Regimen Normal Work Ensemble*[c]	*Work-Rest Regimen Impermeable Ensemble*
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (30.8°-32.2°C)	After each 150 minutes of work	After each 120 minutes of work.

[a] For work levels of 250 kilocalories/hour (Light-Moderate Type of Work)

[b] Calculate the adjusted air temperature (ta adj) by using this equation: ta adj °F = ta °F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

[c] A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

[d] The information presented above was generated using the information provided in NIOSH/OSHA/EPA/USGC Occupational Safety Guide for Hazardous Waste Site Activities.

In order to determine if the work rest cycles are adequate for the personnel and specific site conditions additional monitoring of individuals heart rates will be conducted during the rest cycle. To check the heart rate, count the radial pulse for 30 seconds at the beginning of the rest period. If the heart rate exceeds 110 beats per minute, shorten the next work period by one-third and maintain the same rest period

Additionally one or more of the following control measures can be used to help control heat stress and are mandatory if any site worker has a heart rate (measure immediately prior to rest period) exceeding of 115 beats per minute:

- Site workers will be encouraged to drink plenty of water and electrolyte replacement fluids throughout the day.
- On-site drinking fluids will be kept cool (50 to 60°F).
- A work regimen that will provide adequate rest periods for cooling down will be established, as required.
- All personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion, and heat cramps.
- Cooling devices such as vortex tubes or cooling vests should be used when personnel must wear impermeable clothing in conditions of extreme heat.
- Employees should be instructed to monitor themselves and coworkers for signs of heat stress and to take additional breaks as necessary.
- A shaded rest area must be provided. All breaks should take place in the shaded rest area.
- Employees must not be assigned to other tasks during breaks.
- Employees must remove impermeable garments during rest periods. This includes white Tyvek-type garments.
- All employees must be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress disorders.

4.3 Biological Hazards

Biological hazards may include poison ivy, snakes, thorny bushes and trees, ticks, mosquitoes, avian excrement, and other pests.

4.3.1 Avian Excrement

Bird excrement, in general, may not normally be considered hazardous but in enclosed areas and in large amounts it can cause illness. It is the potential bacteria and fungi that may be living in the bird residue which can cause adverse health effects.

Ornithosis (Psittacosis or Parrot Fever), is caused by a bacteria, Chlamydia psittaci which may be present in nasal discharge, droppings, tissues and feathers of infected birds, primarily pigeons and parrots. The route of entry is inhalation of contaminated dust. This disease is occasionally transmitted from human to human. There are no local effects associated with this disease. Systemic effects are evident after a seven to fourteen day incubation period. These symptoms include fever, headache, slow pulse, insomnia, lethargy, vomiting and diarrhea.

Histoplasmosis (Darling's disease, Reticuloendotheliosis) is caused by a fungus (Histoplasma capsulatum) that grows in soils contaminated by bird excrement. The route of entry in most cases is through the lungs, a secondary route is through the gastrointestinal tract. Local effects include pulmonary infection resembling Pulmonary Tuberculosis, Mucocutaneous ulcers of the mouth, tongue, pharynx, gums, larynx, penis, and bladder. These are rare and are only found in adults. Systemic effects are a pulmonary histoplasmosis that may range from a self-limiting infection to a fatal disease.

Extrinsic Allergic Alveolitis is an allergic reaction caused by breathing organic dust. In its acute form, usually four to eight hours of exposure, it starts out with a fever, chills, dry cough, and shortness of breath. Chronic exposure can lead to a loss of weight, occasional mild fever, general lethargy, as it worsens the lungs become smaller, the end result resembles a fibrosing alveolitis.

Safety precautions for dealing with avian excrement include: use of a full body covering, eye protection, gloves, and respiratory protection. Additionally, personnel should follow basic personal hygiene practices such as frequent hand washing, especially before eating, drinking, smoking, or applying cosmetics.

4.4 Noise

Exposure to noise over the OSHA action level can cause temporary impairment of hearing; prolonged and repeated exposure can cause permanent damage to hearing. The risk and severity of hearing loss increases with the intensity and duration of exposure to noise. In addition to damaging hearing, noise can impair voice communication, thereby increasing the risk of accidents on site.

Control. All personnel must wear hearing protection - with a Noise Reduction Rating (NRR) of at least 20 - when noise levels exceed 85 dBA. When it is difficult to hear a co-worker at normal conversation distance, the noise level is approaching or exceeding 85 dBA, and hearing protection is necessary. All

site personnel who may be exposed to noise must also receive baseline and annual audiograms and training as to the causes and prevention of hearing loss. Noise monitoring is discussed in Section 8.

Whenever possible, equipment that does not generate excessive noise levels will be selected for this project. If the use of noisy equipment is unavoidable, barriers or increased distance will be used to minimize worker exposure to noise, if feasible.

4.5 Spill Control Plan

All personnel must take every necessary precaution to minimize the potential for spills during site operations. All on-site personnel are obligated to report immediately any discharge, no matter how small, to the HSS. The HSS will notify the Engineer of any discharge within two hours of discovery.

Spill control apparatus will be located at a work area when the HSS foresees the potential for discharge to the ground. All sorbent materials used for a clean-up will be containerized and labeled separately from other wastes, unless otherwise directed by the contracting officer. In the event of a spill, the HSS will follow the provisions outlined in Section 11 to contain and control released materials and to prevent spread to off-site areas.

4.6 Sanitation

Site sanitation will be maintained according to OSHA and Department of Health requirements.

4.6.1 Break Area

Breaks must be taken in the support zone, away from the active work area after site personnel go through decontamination procedures. There will be no smoking, eating, drinking, or chewing gum or tobacco in the area other than the support zone.

4.6.2 Potable Water

The following rules apply for all project field operations:

- An adequate supply of potable water will be provided at each work site. Potable water must be kept away from hazardous materials, contaminated clothing, and contaminated equipment.
- Portable containers used to dispense drinking water must be capable of being tightly closed, and must be equipped with a tap dispenser. Water must not be drunk directly from the container, nor dipped from the container.
- Containers used for drinking water must be clearly marked and not used for any other purpose.
- Disposable cups must be supplied, and both a sanitary container for unused cups and a receptacle for disposing of used cups must be provided.

4.6.3 Sanitary Facilities

Access to facilities for washing before eating, drinking, or smoking will be provided.

4.6.4 Lavatory

If permanent toilet facilities are not available, an appropriate number of portable chemical toilets will be provided.

4.6.5 Trash Collection

Trash collected from the contamination reduction zone (CRZ) will be separated as potentially contaminated waste. Trash collected in the support and break areas will be disposed of as nonhazardous waste. Trash receptacles will be set up in the CRZ and in the support zone.

4.7 Electrical Hazards

Electricity may pose a particular hazard to site workers due to the use of portable electrical equipment. If wiring or other electrical work is needed, it must be performed by a qualified electrician.

General electrical safety requirements include:

- All electrical wiring and equipment must be a type listed by UL, Factory Mutual Engineering Corporation (FM), or other recognized testing or listing agency.
- All installations must comply with the National Electrical Safety Code (NESC), the National Electrical Code (NEC), or United States Coast Guard regulations.
- Portable and semi portable tools and equipment must be grounded by a multiconductor cord having an identified grounding conductor and a multi-contact polarized plug-in receptacle.
- Tools protected by an approved system of double insulation, or its equivalent, need not be grounded. Double insulated tools must be distinctly marked and listed by UL or FM.
- Live parts of wiring or equipment must be guarded to prevent persons or objects from touching them.
- Electric wire or flexible cord passing through work areas must be covered or elevated to protect it from damage by foot traffic, vehicles, sharp corners, projections, or pinching.
- All circuits must be protected from overload.
- Temporary power lines, switch boxes, receptacle boxes, metal cabinets, and enclosures around equipment must be marked to indicate the maximum operating voltage.
- Plugs and receptacles must be kept out of water unless of an approved submersible construction.
- All extension outlets must be equipped with ground fault circuit interrupters (GFCI).
- Attachment plugs or other connectors must be equipped with a cord grip and be constructed to endure rough treatment.
- Extension cords or cables must be inspected prior to each use, and replaced if worn or damaged. Cords and cables must not be fastened with staples, hung from nails, or suspended by bare wire.
- Flexible cords must be used only in continuous lengths without splice, with the exception of molded or vulcanized splices made by a qualified electrician.

4.8 Lifting Hazards

Back strain or injury may be prevented by using proper lifting techniques. The fundamentals of proper

lifting include:

- Consider the size, shape, and weight of the object to be lifted. A mechanical lifting device or additional persons must be used to lift an object if it cannot be lifted safely alone.
- The hands and the object should be free of dirt or grease that could prevent a firm grip.
- Gloves must be used, and the object inspected for metal slivers, jagged edges, burrs, or rough or slippery surfaces.
- Fingers must be kept away from points which could crush or pinch them, especially when putting an object down.
- Feet must be placed far enough apart for balance. The footing should be solid and the intended pathway should be clear.
- The load should be kept as low as possible, close to the body with the knees bent.
- To lift the load, grip firmly and lift with the legs, keeping the back as straight as possible.
- A worker should not carry a load that he or she cannot see around or over.
- When putting an object down, the stance and position are identical to that for lifting; the legs are bent at the knees, and the back is straight as the object is lowered.

5. Personal Protective Equipment

5.1 General

Personal protective equipment is required to safeguard site personnel from various hazards. Varying levels of protection may be required depending on the level of contaminants and the degree of physical hazard. This section presents the various levels of protection and defines the conditions of use for each level.

5.2 Levels of Protection

Protection levels are determined based upon contaminants present in the work area. A summary of the levels is presented in this section.

5.2.1 Level D Protection

Level D Protection is required for all work in the support zone and when excavating impacted soil containing less than 50 ppm PCBs.

The minimum level of protection that will be required of RHLaw personnel and subcontractors at the site will be Level D, which will be worn in support areas. The following equipment will be used:

- Work clothing as prescribed by weather;
- Safety work shoes/boots with safety toe boxes meeting ANSI Z41;
- Safety glasses or goggles, meeting ANSI Z87;
- Hard hat, meeting ANSI Z89;
- Hearing protection (If noise levels exceed 85 dBA, then hearing protection with a US EPA NRR of at least 20 dBA must be used);

5.2.2 Modified Level D Protection

Modified Level D Protection is required in the Exclusion Zone (EZ) when excavating PCB impacted soil with 50 ppm or greater concentrations of PCBs. Ground intrusive work with concentrations less than 50 ppm shall include glove protection and muck boots. At the discretion of the worker other elements of Modified Level D protection are optional.

Modified Level D will be used when airborne constituents are not present at levels of concern, but site activities are causing an increased potential for skin contact with subsurface liquids, sediments, and soil. Modified Level D consists of:

- Tyvek® coveralls or equivalent/ material coveralls with integral shoe covers and hoods are required inside the EZ;
- Safety work shoes/boots with safety toe boxes meeting ANSI Z41;
- Muck boots are to be worn over the coverall shoe covers;
- Safety glasses or goggles meeting ANSI Z87;
- Hard hat meeting ANSI Z89;
- Face shield in addition to safety glasses or goggles when projectiles or splashes pose a hazard;
- Leather work gloves over nitrile inner gloves; and
- Hearing protection (if necessary).

5.2.3 Level C Protection

Level C protection will be required when the airborne concentration of suspected constituents is known to site action levels. Level C protection will be used for operations when air monitoring instruments indicate an upgrade is necessary. See Section 8.

The following equipment will be used for Level C protection:

- Modified level D Protection as listed in 5.2.2
- Full-face or half-face air-purifying respirator with P-100 high efficiency particulate filters which are NIOSH/MSHA approved.

5.2.4 Selection of PPE

Equipment for personal protection will be selected based on the potential for contact, site conditions, ambient air quality, and the judgment of supervising site personnel and HS professionals. The PPE used will be chosen to be effective against the compound(s) present on the site.

5.3 Site Respiratory Protection Procedures

Respiratory protection is an integral part of employee health and safety at the site due to the potential for airborne constituents. Site respiratory protection procedures will consist of the following:

- All site personnel who may use respiratory protection will have an assigned respirator.
- All site personnel who may use respiratory protection will have been fit tested and trained

in the use of a the air purifying respirator to be used within the past 12 months.

- All site personnel who may use respiratory protection must within the past year have been medically certified as being capable of wearing a respirator. Documentation of the medical certification must be provided to the HSS, prior to commencement of site work.
- Only cleaned, maintained, NIOSH/MSHA-approved respirators are to be used on this site.
- If respirators are used, the respirator cartridge is to be properly disposed of at the end of each work shift, or when load-up or breakthrough occurs.
- Contact lenses users are required to wear goggles over or instead of safety glasses in dusty operations.
- All site personnel who may use respiratory protection must be clean-shaven. Mustaches and sideburns are permitted, but they must not touch the sealing surface of the respirator.
- Respirators will be inspected, and a negative pressure test performed prior to each use.
- After each use, the respirator will be wiped with a disinfectant, cleansing wipe. When used, the respirator will be thoroughly cleaned at the end of the work shift. The respirator will be stored in a clean plastic bag, away from direct sunlight in a clean, dry location, in a manner that will not distort the face piece.

5.4 Using PPE

Depending upon the level of protection selected, specific donning and doffing procedures may be required. The procedures presented in this section are mandatory when Modified Level D, or Level C PPE is used.

All people entering the EZ must put on the required PPE in accordance with the requirements of this plan. When leaving the EZ, PPE will be removed in accordance with the procedures listed, to minimize the spread of contamination.

5.4.1 Donning Procedures

These procedures are mandatory when Modified Level D or higher PPE is used on the project:

- Put on work clothes or coveralls;
- Put on the required chemical protective coveralls or rain gear;
- Put on the required chemical protective boots or boot covers;
- Tape the legs of the coveralls to the boots with duct tape;
- Put on the required chemical protective gloves;
- Tape the wrists of the protective coveralls to the gloves;
- Don the required respirator (Level C or higher) and perform appropriate fit check;
- Put hood or head covering overhead and respirator straps (Level C or higher) and tape hood to facepiece; and
- Don remaining PPE, such as safety glasses or goggles and hard hat.

When these procedures are instituted, one person must remain outside the work area to ensure that each person entering has the proper protective equipment.

5.4.2 Doffing Procedures

The following procedures are mandatory when Modified Level D or higher PPE is required for this project. Whenever a person leaves a Modified Level D or higher work site, the following decontamination sequence will be followed:

- Upon entering the CRZ, rinse contaminated materials from the muck boots and remove leaving in the CRZ;
- Remove outer work gloves and leave in CRZ with muck boots;
- Remove gross contamination from outer suit;
- Step into rolled down bag and roll protective garment in a manner to contain potentially contaminated outer suit;
- Remove respirator if worn;
- Remove outer gloves;
- Step out of suit into clean zone;
- Clean reusable protective equipment;
- Wash hands, face and neck or shower (if necessary);
- Proceed to clean area and dress in clean clothing; and
- Clean and disinfect respirator (Level C or higher) for next use.

All disposable equipment garments, and PPE must be bagged in plastic bags, labeled for disposal. See Section 7 for detailed information on decontamination stations.

5.5 Selection Matrix

The level of personal protection selected will be based upon real-time air monitoring of the work environment and an assessment by the HSS of the potential for skin contact with impacted materials. The PPE selection matrix is given in Table 5-1. This matrix is based on information available at the time this plan was written. The Airborne Constituent Action Levels in Table 8-1 should be used to verify the need for upgrade and downgrade of PPE.

TABLE 5-1
PPE SELECTION MATRIX
Impacted soil with 50 ppm or greater PCB contamination

Task	Anticipated Level of Protection for Task Initiation
Mobilization / Demobilization / Site preparation and access control	Level D(support zones) Modified Level D(exclusion zones)
Support Zone Activities	Level D
Excavation/Materials Handling/ Intrusive Activities	Modified Level D
Exclusion Zone Activities	Modified Level D
PCB Soil Removal and Decontamination Activities	Modified Level D Level C(exclusion zones if dust levels require)
Decontamination/Equipment Cleaning Activities	Modified Level D
Site Restoration	Level D

NOTE: Gloves and muck boots required in addition to Level D for ground intrusive work with PCB concentrations from 1 to 50 ppm.

6. Site Control

6.1 Authorization to Enter

All personnel who are potentially exposed to hazardous substances must have completed hazardous waste operations initial training as defined under OSHA Regulation 29 CFR 1910.120, have completed their training or refresher training within the past 12 months, and have been certified by a physician as fit for hazardous waste operations in order to enter a site area designated as an EZ or CRZ. Personnel without such training or medical certification may enter the designated SZ only. The HSS will maintain a list of authorized persons; only personnel on the authorized persons list will be allowed within the EZ or CRZ.

6.2 Site Orientation and Hazard Briefing

No person will be allowed in the general work area during site operations without first being given a site orientation and hazard briefing. This orientation will be presented by the HSS, and will consist of a review of this HASP. This review must cover the chemical, physical, and biological hazards, protective equipment, safe work procedures, and emergency procedures for the project. In addition to this meeting, Daily Safety Meetings will be held each day before work begins.

All people on the site, including visitors, must document their attendance to this briefing as well as the Daily Safety Meetings.

6.3 Certification Documents

A training and medical file may be established for the project and kept on site during all site operations. The 24 or 40-hour training, update, and specialty training [first-aid/cardiopulmonary resuscitation (CPR)] certificates, as well as current medical clearance for all project field personnel, will be maintained within that file. All RHLaw and subcontractor personnel must provide their training and medical documentation to the HSS prior to the start of field work.

6.4 Entry Log

A log-in/log-out sheet will be maintained at the site by the HSS. Personnel must sign in and out on a log sheet as they enter and leave the CRZ, and the HSS may document entry and exit in the field notebook.

6.5 Entry Requirements

In addition to the authorization, hazard briefing and certification requirements listed above, no person will be allowed on any RHLaw field site unless he or she is wearing the minimum PPE as described in Section 5. Personnel entering the EZ or CRZ must wear the required PPE for those locations.

6.6 Emergency Entry and Exit

People who must enter the site on an emergency basis will be briefed of the hazards by the HSS. All hazardous activities will cease in the event of an emergency and any sources of emissions will be controlled, if possible.

People exiting the site because of an emergency will gather in a safe area for a head count. The HSS is responsible for ensuring that all people who entered the work area have exited in the event of an emergency.

6.7 Contamination Control Zones

Contamination control zones are maintained to prevent the spread of contamination and to prevent unauthorized people from entering hazardous areas.

6.7.1 Exclusion Zone

The EZ consists of the specific work area, or may be the entire area of suspected contamination. All employees entering the EZ must use the required PPE, and must have the appropriate training and medical clearance for hazardous waste work. The EZ is the defined area where there is a possible respiratory and/or contact health hazard. The location of each exclusion zone will be identified by cones, caution tape, or other appropriate means.

6.7.2 Contamination Reduction Zone

The CRZ or transition area will be established, if necessary, to perform decontamination of personnel

and equipment. All personnel entering or leaving the EZ will pass through this area to prevent any cross-contamination. Tools, equipment, and machinery will be decontaminated in a specific location. The decontamination of all personnel will be performed on site adjacent to the EZ. Personal protective outer garments and respiratory protection will be removed in the CRZ and prepared for cleaning or disposal. This zone is the only appropriate corridor between the EZ and the SZ.

6.7.3 Support Zone

The SZ is a clean area outside the CRZ located to prevent employee exposure to hazardous substances. Eating and drinking will be permitted in the support area only after proper decontamination. Smoking may be permitted in the SZ, subject to site requirements.

6.7.4 Posting

The EZ, CRZ, and SZ will be prominently marked and delineated using cones, caution tape, or other suitable means.

6.8 Site Inspections

The site supervisor will conduct a daily inspection of site activities, equipment, and zone set up to verify that the required elements are in place. The inspections must be documented and reviewed by HSS and PM.

7. Decontamination/Equipment Cleaning

7.1 Personnel Decontamination

All personnel wearing Modified Level D or Level C protective equipment in the contaminated zone must undergo personal decontamination prior to entering the SZ. The personnel decontamination area will consist of the following stations.

Station 1: Personnel leaving the contaminated zone will remove the gross contamination from their outer clothing and muck boots. Remove muck boots and leave for reentry.

Station 2: Personnel will remove their outer garment and gloves while standing in a rolled down plastic bag. Full bags will be sealed and deposited in lined waste receptacles. Personnel will then decontaminate their hard hats with an aqueous solution of detergent or other appropriate cleaning solution. These items are then hand carried to the next station.

Station 3: Personnel will thoroughly wash their hands and face before leaving the decontamination zone. Respirators will be sanitized and then placed in a clean plastic zip lock bag.

7.2 Equipment Decontamination

All vehicles that have entered the contaminated zone will be decontaminated at the decontamination pad

prior to leaving the zone. Plans will be developed to keep equipment from being contaminated except for the bucket. In this case damp rag wipe down of the remaining equipment should be adequate. If the level of vehicle contamination is low, decontamination may be limited to rinsing of tires and wheel wells with water. Bucket cleaning will take place with soap and water over a containment pool and waste water collected for disposal as appropriate..

7.3 Personal Protective Equipment Decontamination

Where and whenever possible, single use, external protective clothing must be used for work within the EZ or CRZ. This protective clothing must be disposed of in properly labeled containers.

Reusable protective clothing will be rinsed at the site with detergent and water. The rinsate will be collected for disposal.

When removed from the CRZ, the respirator will be thoroughly cleaned with soap and water. The respirator face piece, straps, valves and covers must be thoroughly cleaned at the end of each work shift and ready for use prior to the next shift. Respirator parts may be disinfected with a solution of bleach and water, or by using a spray disinfectant.

8. Site Monitoring

8.1 Air Monitoring

Air monitoring will be conducted to evaluate airborne constituent levels. Personal exposure monitoring may be necessary to evaluate employee exposures. The monitoring results will dictate work procedures and the selection of PPE.

If RHLaw is working in an area, one subcontractor may conduct direct-reading air monitoring and share the results with the other subcontractors working in the area. In this situation all subcontractors must coordinate air monitoring through a mutually-agreed upon air monitor. The RHLaw HSS will be responsible for utilizing the air monitoring results to determine appropriate health and safety precautions for RHLaw personnel only.

8.2 Direct-Reading Air Monitoring

Air monitoring will be conducted to evaluate airborne constituent levels. Work area monitoring results will dictate work procedures and the selection of PPE. The monitoring devices to be used, at a minimum, are combustible gas/oxygen (LEL/O_2), hydrogen sulfide, carbon monoxide meter, and an MIE Personal Data RAM portable dust monitor or equivalent.

Monitoring for total dust/particulate for the purpose of estimating worker exposure level will be conducted during all field activities with the potential for organic vapor or dust generation. At a minimum, readings will be recorded at least every quarter hour or more frequently as determined by the HSS. Air monitoring data must be recorded on an air monitoring log or in the field notebook by the HSS.

8.3 Personal Air Monitoring for PCB

To quantify the potential exposure of site personnel to PCB during site activities involving disturbance of these materials during remediation of soil containing 50 ppm PCBs or greater in air on this project, a personal air sampling plan to determine airborne concentrations of PCB will be implemented by each employer on-site. The following paragraphs outline the frequency, sampling, analytical, and record-keeping requirements associated with personal air sampling during this project.

During initiation of site tasks, personal air sampling will be conducted on personnel working in the areas of the site where the task is being conducted. Personal air samples for PCB will be collected for at least 1 representative employees working in or around the site activities. If airborne PCB results are shown to be safe within the parameters of the direct reading instrument use, personnel sampling can be suspended.

Personal samples for PCB will be collected according to NIOSH Method #5503 or equivalent. PCB samples will be collected utilizing a personal sample pump equipped with a filter and a florisil tube. The sample pump must be calibrated prior to and following sample collection to a flow rate between 0.05- 0.2 liters/minute with a representative sampler in place.

All personal samples will be submitted to an independent, American Industrial Hygiene Association-accredited laboratory for analysis. Accompanying media blanks also will be submitted to the laboratory for analysis at a rate of one blank for every 10 samples. Holding time requirements and field preparation procedures as specified in the respective NIOSH method will be followed.

8.4 Noise Monitoring

Noise monitoring will be conducted as required to profile noise exposure on the site. Hearing protection is mandatory for all employees in noise hazardous areas, such as around heavy equipment. As a general rule, sound levels that cause speech interference at normal conversation distance should require the use of hearing protection.

8.5 Monitoring Equipment Maintenance and Calibration

All direct reading instrumentation calibrations should be conducted under the approximate environmental conditions the instrument will be used. Instruments must be calibrated before and after use, noting the reading(s) and any adjustments which are necessary. All air monitoring equipment calibrations, including the standard used for calibration, must be documented on a calibration log or in the field notebook. All completed health and safety documentation/forms must be reviewed by the HSS.

All air monitoring equipment will be maintained and calibrated in accordance with the specific manufacturers' procedures. Preventive maintenance and repairs will be conducted in accordance with the respective manufacturers' procedures. When applicable, only manufacturer-trained and/or authorized personnel will be allowed to perform instrument repairs or preventive maintenance.

If an instrument is found to be inoperative or suspected of giving erroneous readings, the HSS must be responsible for immediately removing the instrument from service and obtaining a replacement unit. **If the instrument is essential for safe operation during a specific activity, that activity must cease until an appropriate replacement unit is obtained.** The HSS will be responsible for ensuring a replacement unit is obtained and/or repairs are initiated on the defective equipment.

8.6 Action Levels

Table 8-1 presents airborne contaminant action levels that will be used to determine the procedures and protective equipment necessary based on conditions as measured at the site.

TABLE 8-1
AIRBORNE CONSTITUENT ACTION LEVELS
Activities with PCB Impacted Material at concentrations of 50 ppm or greater PCBs

Parameter	Reading	Action
Total Particulate	0 to 0.15 mg/m^3	Normal operations
	> 0.15 mg/m^3	Initiate wetting of work area to control dust; Upgrade to Level C; Notify technician implementing monitoring according to the Community Air Monitoring Plan
	> 1.5 mg/m^3	Stop work; evacuate area, ventilate area; investigate cause of reading or Upgrade to level B

9. Employee Training

9.1 General

All on-site project personnel who work in areas where they may be exposed to site constituents must be trained as required by OSHA Regulation 29 CFR 1910.120. Such field employees also receive a minimum of three days of actual field experience under the direct supervision of a trained, experienced supervisor. Personnel who completed their training more than 12 months prior to the start of the project must have completed an 8-hour refresher course within the past 12 months. The RHLaw HSS must have completed an additional 8 hours of training for supervisors, and must have a current first-aid/CPR certificate.

9.2 Initial 24-Hour HAZWOPER Site Worker Course

The following is a list of the topics typically covered in a 24-hour training course:

- General safety procedures;
- Physical hazards (fall protection, noise, heat stress, cold stress);

- Names and job descriptions of key personnel responsible for site HS;
- Safety, health, and other hazards typically present at hazardous waste sites;
- Use, application and limitations of PPE;
- Work practices by which employees can minimize risks from hazards;
- Safe use of engineering controls and equipment on site;
- Medical surveillance requirements;
- Recognition of symptoms and signs which might indicate overexposure to hazards;
- Worker right-to-know (Hazard Communication OSHA 1910.1200);
- Routes of exposure to constituents;
- Engineering controls and safe work practices;
- Components of a site HS program and HASP;
- Decontamination practices for personnel and equipment;
- Confined-space entry procedures; and
- General emergency response procedures.

9.3 Supervisor Course

Management and supervisors receive an additional eight hours of training which typically includes:

- General site safety and health procedures;
- PPE programs; and
- Air monitoring techniques.

9.4 Site-Specific Training

Site-specific training will be accomplished by each site worker reading this HASP or through a site briefing by the HSS on the contents of this HASP before work begins. The review must include a discussion of the chemical, physical, and biological hazards, the protective equipment and safety procedures, and emergency procedures.

9.5 Daily Safety Meetings

Daily Safety Meetings will be held to cover the work to be accomplished, the hazards anticipated, the protective clothing and procedures required to minimize site hazards, and emergency procedures. These meetings should be presented by the HSS prior to beginning the day's field work. No work will be performed in an EZ before the Daily Safety Meeting has been held. The Daily Safety Meeting must also be held prior to new tasks, and repeated if new hazards are encountered. A Daily Safety Meeting Log should be documented and include the attendees names and topics covered.

9.6 First Aid and CPR

At least one employee current in first aid/CPR will be assigned to the work crew and will be on the site during operations. Refresher training in first aid (triennially) and CPR (annually) are required to keep the certificate current. This individual must also receive training regarding the precautions and protective equipment necessary to protect against exposure to blood-borne pathogens.

9.7 Excavation Competent Person

29 CFR 1926 Subpart P does not specify requirements for training of competent persons with respect to excavations activities but OSHA does provide performance criteria for determining competent person status. General criteria for being considered competent with respect to excavation activities includes a demonstrated proficiency in:

- Excavation hazard recognition;
- Inspection procedures;
- Protective systems;
- Soil classification; and
- Air monitoring.

10. Medical Surveillance

10.1 Medical Examination

All personnel who are potentially exposed to site constituents must participate in a medical surveillance program as defined by OSHA at 29 CFR 1910.120 (f).

10.1.1 Preplacement Medical Examination

All potentially exposed personnel must have completed a medical examination prior to assignment, and periodically thereafter as defined by applicable OSHA Regulations. The specific content of the preplacement and periodic medical examinations will be determined by an occupational physician to meet the requirements of the OSHA requirements and based on the type of chemical exposures anticipated. The preplacement and periodic medical examinations typically may include but not be limited to the following elements:

- Medical and occupational history questionnaire;
- Physical examination;
- Complete blood count, with differential;
- Liver enzyme profile;
- Chest X-ray, at a frequency determined by the physician;
- Pulmonary function test;
- Audiogram;
- Electrocardiogram for persons older than 45 years of age, or if indicated during the physical examination;
- Visual acuity; and
- Follow-up examinations, at the discretion of the examining physician or the medical director.

Results of all medical evaluations shall be provided to employees.

RHLaw utilizes Industrial Medical Associates, PC (IMA) located at 961 Canal Street, Syracuse, NY as their provider of occupational medical surveillance services. Industrial Medical Associates, PC will be the occupational physician and provide a letter summarizing their findings and recommendations, confirming the worker's fitness for work and ability to wear a respirator. Documentation of medical clearance will be available for each employee during all project site work.

Subcontractors will certify that all their employees have successfully completed a physical examination by a qualified physician. The physical examinations must meet the requirements of 29 CFR 1910.120 and 29 CFR 1910.134. Subcontractors will supply copies of the medical examination certificate for each on-site employee.

10.1.2 Other Medical Examination

In addition to pre-employment, annual, and exit physicals, personnel may be examined:

- At employee request after known or suspected exposure to toxic or hazardous materials;
- At the discretion of the site owner, engineer, or occupational physician in anticipation of, or after known or suspected exposure to toxic or hazardous materials; and
- At the discretion of the occupational physician. (IMA)

10.1.3 Periodic Exam

Following the placement examination, all employees must undergo a periodic examination, similar in scope to the placement examination.

10.2 Medical Restriction

When the examining physician identifies a need to restrict work activity, the employee's supervisor must communicate the restriction to the employee and the HSS. The terms of the restriction will be discussed with the employee and the supervisor.

11. Emergency Procedures

11.1 General

Prior to the start of operations, the work area will be evaluated for the potential for fire, constituent release, or other catastrophic event. Unusual conditions or events, activities, chemicals, and conditions will be reported to the HSS immediately.

The HSS will establish evacuation routes and assembly areas for the site. All personnel entering the site will be informed of this route and the assembly area.

11.2 Emergency Response

If an incident occurs, the following steps will be taken:

- The HSS will evaluate the incident and assess the need for assistance and/or evacuation;
- The HSS will call for outside assistance as needed;
- The HSS will ensure the site representative is notified promptly of the incident; and
- The HSS will take appropriate measures to stabilize the incident scene.

11.2.1 Fire

In the case of a fire on the site, the HSS will assess the situation and direct fire-fighting activities. The HSS will ensure that the site representatives (as appropriate) are immediately notified of any fires. Site personnel will attempt to extinguish the fire with available extinguishers, if safe to do so. In the event of a fire that site personnel are unable to safely extinguish, the local fire department will be summoned.

11.2.2 Constituent Release

In the event of a constituent release, the following steps will be taken:

- Notify HSS immediately;
- Evacuate immediate area of release;
- Conduct air monitoring to determine needed level of PPE; and
- Don required level of PPE and prepare to implement control procedures.

The HSS has the authority to commit resources as needed to contain and control released material and to prevent its spread to off-site areas. Spill kits for mercury and oils shall be maintained on site.

11.3 Medical Emergency

All employee injuries must be promptly reported to the HSS, who will:

- Provide emergency decontamination.
- Ensure that the injured employee receives prompt first aid and medical attention.
- In emergency situations, the worker is to be transported by appropriate means to the nearest urgent care facility (normally a hospital emergency room).

11.3.1 First Aid - General

All persons must report any near-miss incident, accident, injury, or illness to their immediate supervisor or the HSS. First aid will be provided by trained personnel. Injuries and illnesses requiring medical treatment must be documented. The HSS must conduct an accident investigation as soon as emergency conditions no longer exist and first-aid and/or medical treatment has been ensured.

If first-aid treatment is required, first aid kits are kept at the CRZ. If treatment beyond first aid is required, the injured should be transported to the medical facility. If the injured is not ambulatory, or shows any sign of not being in a comfortable and stable condition for transport, then an ambulance-/paramedics should be summoned. If there is any doubt as to the injured worker's condition, it is best to let the local paramedic or ambulance service examine and transport the worker.

11.3.2 First Aid - Inhalation

Any employee complaining of symptoms of chemical overexposure as described in Section 3 will be removed from the work area and transported to the designated medical facility for examination and treatment.

11.3.3 First Aid - Ingestion

Call EMS and consult a poison control center for advice. If available, refer to the MSDS for treatment information, if recommended. If unconscious, keep the victim on his side and clear the airway if vomiting occurs.

11.3.4 First Aid - Skin Contact

Project personnel, who have had skin contact with constituents will, unless the contact is severe, proceed through the decontamination zone, to the wash-up area. Personnel will remove any contaminated clothing, and then flush the affected area with water for at least 15 minutes. The worker should be transported to the medical facility if he shows any sign of skin reddening, irritation, or if he requests a medical examination.

11.3.5 First Aid - Eye Contact

Project personnel who have had constituents splashed in their eyes or who have experienced eye irritation while in the contaminated zone must immediately proceed to the eyewash station, set up in the decontamination zone. Do not decontaminate prior to using the eyewash. Remove whatever protective clothing is necessary to use the eyewash. Flush the eye with clean running water for at least 15 minutes. Arrange prompt transport to the designated medical facility.

11.4 Reporting Injuries and Illnesses

All injuries and illnesses, however minor, will be reported to the HSS immediately. The HSS will complete an injury investigation report within 24 hours.

11.5 Emergency Information

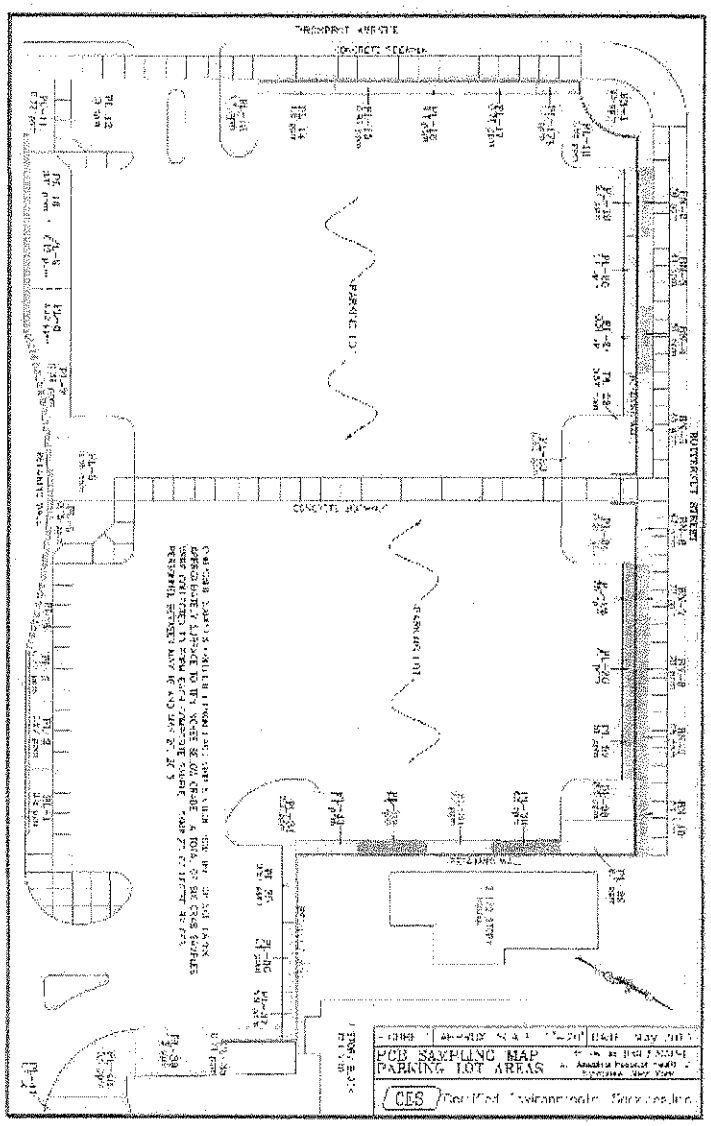
The means to summon local public response agencies such as police, fire, and ambulance will be reviewed in the Daily Safety Meeting. These agencies are identified in the following table.

TABLE 11-1
EMERGENCY CONTACTS

Agency/Contact	Telephone Number
Police Department:	911
Fire Department:	911
Ambulance/EMS:	911
Hospital: St. Joseph's Hospital 301 Prospect Ave. Syracuse, NY 13203	(315) 448-5111

Note: See Table 2-1 of this HASP for telephone numbers of key site engineer and RHLaw personnel associated with this project.

Attachment 1
PCB Survey Drawing


PCB SAMPLING MAP
PARKING LOT AREAS
CES

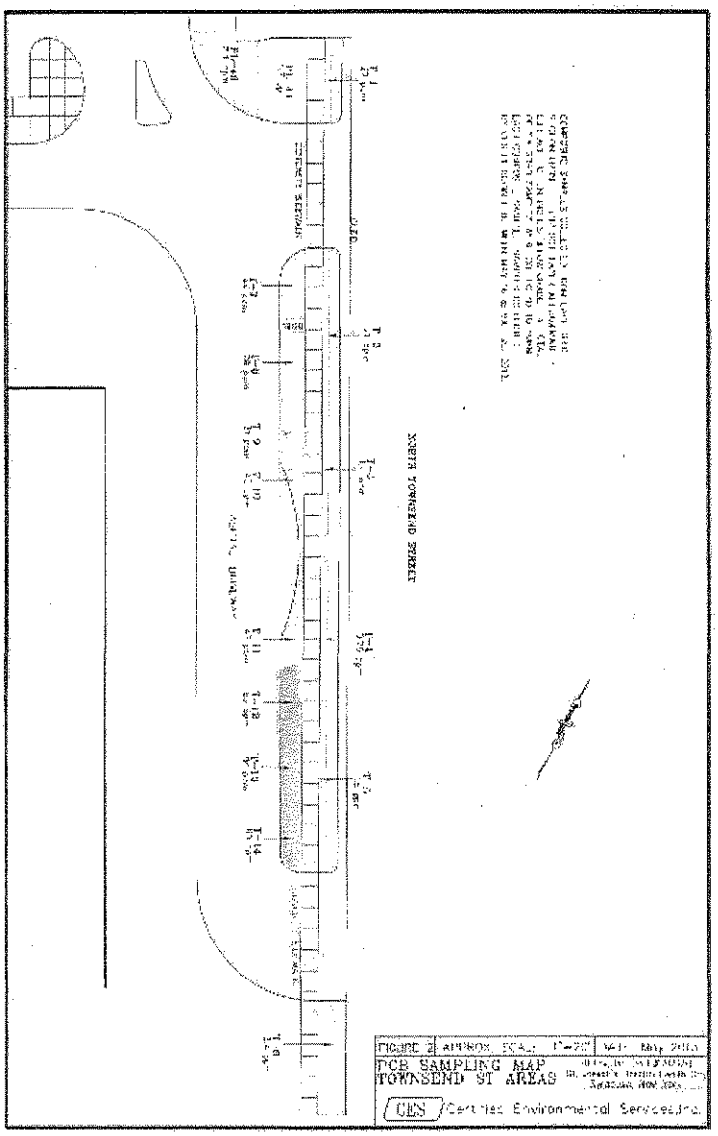


FIGURE 2
PCB SAMPLING MAP
TOWNSEND ST AREAS
CES
Certified Environmental Services, Inc.

Attachment 2
Summary Information for Site Chemicals of Concern

Centers for Disease Control and Prevention
Your Online Source for Credible Health Information

NIOSH

September 2010

NIOSH Publication Number 2010-168c

Chlorodiphenyl (42% chlorine)

Synonyms & Trade Names: Aroclor® 1242, PCB, Polychlorinated biphenyl

CAS No. 53469-21-9	RTECS No. TQ1356000 (../rtecs/tq1b000.html)	DOT ID & Guide 2315 171 (../erg/erg2008/171.pdf)
Formula $C_6H_4ClC_6H_3Cl_2$ (approx)	Conversion	IDLH Ca [5 mg/m³] See: 53469219 (../idlh/53469219.html)
Exposure Limits NIOSH REL: *: Ca TWA 0.001 mg/m³ See Appendix A (nengapdxa.html) [*Note: The REL also applies to other PCBs.] OSHA PEL: TWA 1 mg/m³ [skin]		Measurement Methods **NIOSH** 5503 (../docs/2003-154/pdfs/5503.pdf); **OSHA** PV2089 (../oshamethods/partial/t-pv2089-01-8812-ch/t-pv2089-01-8812-ch.html) See: NMAM (../docs/2003-154/default.html) or OSHA Methods (../oshamethods/oshametb.htm)

Physical Description: Colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.

MW: 258 (approx)	BP: 617-691°F	FRZ: -2°F	Sol: Insoluble	VP: 0.001 mmHg	FP: ?
Sp.Gr(77°F): 1.39	FLPT: NA	UNST: NA	LEL: NA		

Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans & chlorinated dibenzo-p-dioxins.

Incompatibilities & Reactivities: Strong oxidizers

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms: irritation eyes; chloracne; liver damage; reproductive effects; [potential occupational carcinogen]

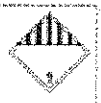
Target Organs: Skin, eyes, liver, reproductive system

CAMEO *Chemicals*

Print

Chemical Datasheet

PCB-1248



Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	CHRIS Code
12672-29-6	2315	Class 9	none

NFPA 704

data unavailable

General Description

PHYSICAL DESCRIPTION: Viscous oily liquid. (NTP, 1992)

Hazards

Reactivity Alerts

none

Air & Water Reactions

Insoluble in water.

Fire Hazard

Excerpt from GUIDE 171 [Substances (Low to Moderate Hazard)]:

Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. (ERG, 2012)

Health Hazard

ACUTE/CHRONIC HAZARDS: Toxic irritant. Hazardous decomposition products. (NTP, 1992)

Reactivity Profile

Simple aromatic halogenated organic compounds are very unreactive. Reactivity generally decreases with increased degree of substitution of halogen for hydrogen atoms.

Belongs to the Following Reactive Group(s)

Attachment 3
Directions and Map to the Hospital

Project located at the Entrance to St. Joseph's Hospital Emergency Room

Attachment 4
HASP Review

By signing below, I am documenting that I have read this plan, understand this plan and will implement this plan during my work activities at this site.

Name	Date